

Licensing policies:

- Believes that ten year license term and high renewal expectancy are appropriate. (pp. 24-26).
- States that competitive bidding is best mechanism for licensing PCS; however, since Congress has not passed enabling legislation, recommends lotteries for selection of licensees. (p. 28).
- Suggests that Commission impose strict financial requirements, a stringent anti-trafficking rule, and prohibit interests in more than one application for each PCS market (except for certain interests in publicly held companies). (p. 28-30).

Regulatory status:

- Emphasizes need for regulatory parity between cellular and PCS carriers. (pp. 26-27).

Plan for relocation of existing users:

- Supports ten-year voluntary negotiation period; however, states that Commission should not impose any restrictions or limitations on process, particularly with respect to PCS licensee's obligation to pay costs of relocation. (p. 8).
- Agrees that, upon expiration of ten-year voluntary negotiation period, PCS licensee could request involuntary relocation, subject to certain conditions. (p. 8).
- States that cellular carriers must receive same protection afforded other fixed microwave licensees. (p. 9).

Technical standards:

- Advocates amendment of cellular rules to give cellular carriers same flexibility as afforded PCS carriers. (p. 21).
- States that Commission should also remove all other limits on carrier's competitive choice, such as AMPS service requirement. (p. 22).
- Asserts that continued liberalization of cellular rules is in the public interest. (pp. 22-24).

VIACOM INTERNATIONAL INC.
Comments on 2 GHz Licensed PCS

Interest: Cable operator holding several experimental PCS licenses

Band plan:

- Opposes Commission's proposal to divide 90 MHz of allocated spectrum into three fixed 15 MHz frequency block pairs (p. 3).
- Recommends that FCC apply Spectral Zone Coordination methodology (discussed below). (pp. 11-12).
- Suggests maximum of two and, in any event, no more than three PCS licensees per market. (pp. 13-14).
- If three frequency blocks of 30 MHz each are allocated, recommends that Commission apply Spectral Zone Coordination technique, providing for 30 MHz reserve that can be accessed by PCS operators on notification basis until incumbent users relocate as necessary. (pp. 12-13).

Amount of spectrum per licensed system:

- 25 MHz per licensed system. (p. 11).

Service areas:

- Opposes any nationwide licensing of PCS. (p. 17).
- Recommends adoption of cellular service areas (i.e., the 734 MSAs and RSAs) as the service areas for PCS. (p. 17).

Cellular carrier participation:

- Opposes allowing cellular operators to be licensed for PCS in their own areas, citing anticompetitive concerns. (p. 13 n.14, p. 18).

Local exchange carrier participation:

- Opposes any licensing of LECs for PCS within their service areas. (p. 18).
- Opposes Commission's proposal to provide 10 MHz in the 1850-1990 MHz band that LECs could use for local loop operations in their telephone service areas. (p. 18).
- Supports cap on total population that may be served by a single PCS licensee. (p. 19).

- Recommends that Commission prohibit any single entity from holding PCS licenses or attributable interests in PCS licenses in more than 10 percent of the available markets serving more than 15 percent of the population, with no more than two licenses held in the top ten markets. (p. 19).

Licensing policies:

- Supports use of lotteries, with a flat filing fee of \$10,000 per service area and a required showing of reasonable expectation of availability of funds. (pp. 20-21).

Regulatory status:

- Recommends minimal regulation of PCS regardless of classification as private or common carrier. (p. 21).
- Would allow applicants to select private or common carrier status for each service they propose at the time they file their applications; recommends preemption of state regulation to the maximum extent possible. (pp. 21-22).

Plan for relocation of existing users:

- States that its original Spectral Zone Coordination proposal will result in very fewer relocations; moreover, if the Commission applied the technique to its proposed fixed block scheme, it need not require involuntary relocation in the near term except where there are no frequencies available in the pool to eliminate blockage. (p. 15).
- States that, if the Commission adopts fixed block assignments as proposed, it should establish a voluntary negotiation period of no more than three years, after which involuntary relocation should be required. (pp. 15-16).

Technical standards:

- Introduces Spectral Zone Coordination, under which two PCS licensees in a market are each assured fixed allocation of 25 MHz in the 1850-1990 MHz band; in event of blockage, each PCS licensee would have flexibility to select needed frequencies within 70 MHz frequency block designated as a spectrum "pool" in the 1850-1990 MHz band for any given cell site pending completion of voluntary negotiations or arbitration and involuntary location. (pp. 11-13, p. 22).

THE PUBLIC SERVICE COMMISSION OF WISCONSIN
Comments on 2 GHz Licensed PCS

Interest: State regulatory agency.

Service areas:

- Advocates license territories based upon both the 194 telephone LATAs and the 47 major trading areas to facilitate different types of service. (pp. 12-13).

Regulatory status:

- FCC has not developed an adequate factual record to conclude that state regulation of PCS must be preempted. (p. 5).
- FCC's definition of PCS is too broad and fails to account for various PCS services that might be strictly intrastate in nature and subject to state jurisdiction under section 221(b) of the Communications Act and Louisiana Public Service Commission v. FCC. (p. 6).
- To the extent PCS services exceed the statutory definition of "private land mobile service," PCS must be classified as a common carrier. (pp. 7-8).
- Disputes FCC's reliance on 47 USC § 201(a) and § 332(a) as support for a federally protected right to interconnection with PSTN. (pp. 8-9).

ALCATEL NETWORK SYSTEMS, INC.
Comments on 2 GHz Unlicensed PCS Devices

Interest: Microwave telecommunications equipment manufacturer
and supplier; subsidiary of Alcatel Alsthom.

Technical standards:

- Opposes reallocation of the 1910 to 1930 MHz band until adequate safeguards are adopted to protect against interference to microwave licensees from unlicensed PCS. (p. 3)
- Suggests that an industry-wide inquiry be initiated to collect necessary data and proposals. (p. 3)
- Once completed, the safeguards developed should be made part of appropriate industry standards, such as TSB10.
- Interference calculations should be based upon the assumption that mobiles are distributed evenly over the cellular coverage area. (p. 3)
- The methodology used to calculate interference is inappropriate -- Alcatel submits proposed measure threshold-to-interference curves. (Attachment)

AMERICAN PERSONAL COMMUNICATIONS
Comments on 2 GHz Unlicensed PCS

Interest: New entrant tentatively granted pioneer's preference

Band plan:

- Supports FCC-proposed allocation of 1910-1930 MHz to unlicensed devices. (p. 6)

Plan for relocation of existing users:

- Unlicensed services pose problems because they require clear spectrum. (p. 19)
- The 1910-1930 MHz band is appropriate because there are fewer licensees. (p. 19)

AMERICAN PETROLEUM INSTITUTE
Comments on 2 GHz Unlicensed Devices

Interest: National trade association representing companies involved in oil and gas industries; many members operate point-to-point microwave stations in the Private Operational-Fixed Microwave Service (POFS).

Band plan:

- Opposes proposed allocation of 1910-1930 MHz band for unlicensed PCS operations, stating that it poses significant operational hazards to incumbent licensees. (p. 15).
- States that Commission should make data-PCS a licensed rather than an unlicensed service, and require that PCS operations in this spectrum block be subject to same application/coordination procedures and technical limitations imposed upon PCS operation in the other portions of these bands. (pp. 15-16).

Relocation of existing users:

- If Commission authorizes unlicensed operations, suggests one-year transition period beginning from date of conclusion of proceeding in ET Docket No. 92-9 which propose rechannelizing bands above 3 GHz for displaced 2 GHz users; during one year period, licensees in 1910-1930 GHz band could re-license affected paths in other frequency bands. (pp. 16-17).
- States that, if, during transition period, displaced licensee cannot find suitable replacement spectrum, incumbent licensee should be allowed immediate access to federal government band at 1710-1850 MHz. (p. 17).
- Believes that Commission should not authorize any equipment to operate in 1910-1930 MHz band during one-year transition period. (p. 17).
- Recommends establishment of escrow fund to be contributed to by each manufacturer requesting certification for PCS equipment to operate in 1910-1930 MHz band; funds would pay relocation costs of licensees forced to vacate spectrum immediately to maintain system reliability. (pp. 17-18).
- Suggests that estimates of total amount required be based on figures submitted to the Commission of average replacement costs (e.g. \$100,000 per station). Commission would tally total number of potential links that would need to be replaced. Each manufacturer

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requesting certification would pay equal pro rata share of total estimated cost of replacing all POFS stations in the 1910-1930 MHz range. (p. 18).

- At expiration of one-year transition period, remaining licensees who have not chosen to re-license their paths could be designated as secondary, and Commission could grant certification for unlicensed PCS equipment. (pp. 18-19).
- If Commission rejects transition plan, states that it must ensure that EIRP levels are kept extremely low and that tight restrictions are imposed on band edges to prevent interference. (p. 19).

AT&T
Comments on 2 GHz Unlicensed PCS

Interest: Common carrier long distance telephone company;
possible provider of PCS services.

Band plan:

- FCC should allocate 1910-1930 MHz for unlicensed PCS applications along with additional spectrum between 1895 and 1910 MHz. (p. 14).

Plan for relocation of existing users:

- To avoid windfall profits to incumbents, FCC should adopt a funding mechanism based on fees related to spectrum bandwidth and establish a private industry council to coordinate relocation. (pp. 13-14).

AMERITECH
Comments on 2 GHz Unlicensed PCS

Interest: Bell operating company

Band plan:

- Supports allocation of 1910-1930 MHz for unlicensed uses. (12)
- Spectrum at 1865-1870, 1890-1895, 1945-1950 and 1970-1975 would be held in reserve. (10)
- Reserve blocks would be allocated after 5 years to the service most in need. (11)

Plan for relocation of existing users:

- Unlicensed devices are unlikely to be able to share spectrum, and a method for clearing existing users must be determined. (12)

ANDREW CORPORATION**Comments on 2 GHz Unlicensed PCS Devices**

Interest: Supplier of electronic communications products and services.

Band plan:

- Supports allocation of spectrum block for unlicensed PCS devices, but urges Commission to expand block to 40 MHz. 20 MHz is inadequate to support high capacity, high speed wireless data LANs (6, 8-9).
- Alternatively, the Commission could allocate the 2.4-2.5 GHz band for non-licensed wireless LANs (9).
- Clear spectrum is required for unlicensed PCS use so that multiple service providers may establish interference-free wireless systems in a closed office environment with more favorable air-time charges and/or user licensing procedures (6).

Technical standards:

- The Commission should require intersystem roaming between in-building and licensed PCS systems (12).

Other issues:

- It is critical that the Commission adopt specific rules to permit third parties unlicensed access to licensed PCS spectrum so that they may establish wireless in-building telephony and low speed wireless data systems. For example, the Commission could require PCS licensees to carve out "in-building franchise" territories within which third parties would be permitted to establish in-building operations on a primary basis. Licensed PCS and in-building providers would be required to undertake frequency coordination procedures to avoid intersystem interference (10-11).
- If necessary, the Commission should issue a Third Notice of Proposed Rulemaking to address in-building wireless telephony and wireless high speed data LAN issues not adequately addressed in the Notice (12).

APPLE COMPUTER, INC.
Comments on 2 GHz Unlicensed PCS

Interest: Manufacturer of Data-PCS equipment.

Band plan:

- The need for "user-PCS" merits an immediate allocation of some 20 to 45 MHz more than the FCC has proposed. (p. 3).
- FCC should create a substantial reserve of spectrum to increase the unlicensed PCS spectrum in the event this band becomes fully consumed by unlicensed services and by parties trying to bypass licensed PCS. (p. 3).

Plan for relocation of existing users:

- Relocation of incumbent 2 GHz users to 6 GHz frequencies would delay or prevent development of user-PCS; instead, the FCC should adopt a range of methodologies including leaving some stations in their present channels, reassigning some stations within the present 1850-1990 MHz bands according to a frequency-optimization plan, relocating selected stations to the 6 GHz band, and relocating some stations to the federal government's 1710-1850 band. (pp. 5-6).

Technical standards:

- Opposes the FCC's proposal that unlicensed PCS devices share frequencies on a co-primary basis with the existing microwave users of the 2 GHz band because of the sensitivity of microwave antennas. (p. 4).

ASSOCIATION OF AMERICAN RAILROADS
Comments on 2 GHz Unlicensed PCS

Interest: Railroads (relying on fixed microwave systems)

Technical standards:

- To prevent unlicensed PCS devices from causing interference to existing microwave users, the FCC should require the devices to monitor the spectrum automatically before transmitting and to allow mobiles to transmit only under the control of a base station. (p. 5).

BELL ATLANTIC PERSONAL COMMUNICATIONS, INC.
Comments on 2 GHz Unlicensed PCS

Interest: Bell operating company PCS affiliate

Band plan:

- 1910-1930 MHz should be allocated for unlicensed devices.
(39)

Technical standards:

- The proposed power limits for unlicensed devices will not protect fixed microwave users because most fixed microwave systems operate over 10 MHz and have no filter rejection.
(50)

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BELLSOUTH
Comments on 2 GHz Unlicensed PCS

Interest: Provider of local exchange and mobile service;
possible provider of PCS.

Band plan:

- Supports allocation of 20 MHz for unlicensed low-power PCS usage. (p. 24-26).

Channelization:

- FCC should not impose any channelization on the 20 MHz block or restrict the types of modulation used so that vendors can meet customer needs. (pp. 24-25).

Technical standards:

- Supports Telocator documents discussing need for unlicensed PCS equipment to be protected by a sharing environment that includes common air interfaces, embedded sharing mechanisms, and a "spectrum sharing etiquette." (pp. 25-26).

CALIFORNIA MICROWAVE, INC.
Comments on 2 GHz Unlicensed PCS

Interest: Participant in both the microwave and wireless communications industries.

Plan for relocation of existing users:

- Supports an industry clearing house for relocation royalty payments; payments should reflect undepreciated book value of assets rendered obsolete, rather than the replacement cost. (p. 3).

Technical standards:

- User-PCS requires more than 20 MHz of spectrum to serve a reasonable number of subscribers. (p. 2).
- FCC should adopt common technical rules for both licensed and unlicensed PCS so that PCS is accepted widely enough to be truly economical. (p. 2).
- Co-primary operation of portable PCS devices and fixed microwave service is not feasible. (p. 2).
- WINForum can become the user-PCS technical advisory body. (p. 3).
- Supports improved frequency reuse and spectral efficiency on the part of current fixed microwave operators. (pp. 3-4).

Other:

- The public interest will be served by unbundling unserved-PCS from the licensed PCS proceeding and authorizing early approval of unlicensed devices. (p. 2).

CENTEL CORPORATION
Comments on 2 GHz Unlicensed PCS Devices

Interest: Cellular and local exchange telephone carrier

Band Plan:

- Supports allocation of 1910-1930 MHz band for unlicensed devices (13).

Channelization:

- Supports proposed plan (13).

Cellular carrier participation:

- Opposes any restrictions on cellular participation in PCS. There is no reason to assume cellular carriers would be anything but robust competitors. Further, cellular carriers have developed expertise that should be brought to bear in expanding the scope of PCS services (14-16).
- Restrictions on cellular eligibility would raise implementation issues. Non-controlling interests and minor overlaps in service areas should not bar cellular participation (16-17).
- Opposes any limitation on the amount of PCS spectrum any cellular carrier -- or other PCS applicant -- can acquire (17).

Local exchange carrier participation:

- Because of the valuable contributions LECs could make to the development of PCS, they should be eligible to apply for spectrum both inside and outside their telephone exchange areas (18-19).

Licensing policies:

- Unlicensed devices should be authorized on a non-exclusive, open entry basis -- a Part 15 type licensing scheme (13).

Regulatory status:

- Different regulatory treatment for cellular and local exchange services and the new PCS licensees will create artificial and undesirable marketplace disparities (24-26).

- The proposed expanded cellular service option does nothing to address concerns about disparate regulatory treatment. Supports Telocator petition instead (26-28).
- Further disparities will arise if PCS providers are allowed to prohibit resale or interconnection to their infrastructures (28-29).
- Comparable interconnection to the PSTN should be made available to all categories of PCS providers (29-30).

Technical standards:

- In order not to stifle innovation, the Commission should adopt only minimal technical standards for PCS (30-31).
- Proposed higher power limits are inconsistent with microcellular system (31-32).
- The Commission should establish standards for roaming and interoperability between PCS systems (32).

CINCINNATI BELL TELEPHONE COMPANY
Comments on 2 GHz Unlicensed PCS

Interest: Local exchange carrier.

Band plan:

- FCC should authorize one 10 MHz pair of frequencies per market for unlicensed PCS in the band proposed for licensed PCS. (p. 14).
- The 1910-1930 MHz band proposed for unlicensed PCS would not facilitate the multi-modality necessary for the success of PCS; the 1910-1930 MHz band should be used for unstructured wideband PCS, while the 1900-1910 MHz and 1980-1990 MHz segment could be used for unlicensed PCS, shared between narrowband and wideband users. (pp. 14-15).

COMMUNICATIONS SATELLITE CORPORATION
Comments on 2 GHz Unlicensed PCS Devices

Interest: Satellite communications provider

Band plan:

- The Commission should immediately institute a separate proceeding to allocate the 1970-2010 MHz and 2160-2200 MHz bands to the Mobile Satellite Service. Separate allocations for satellite and terrestrial PCS would best serve users (3).
- COMSAT is not overly concerned about the 10 MHz overlap of the proposed unlicensed PCS band at 1910-1930 MHz into the WARC secondary MSS bands at 1920-1979 MHz (5).

Technical standards:

- The Commission should clarify that standards adopted in this proceeding do not necessarily apply to satellite PCS or to PCS at the international level (5).
- The Commission should adopt flexible standards so as not to constrain development (6).
- Mobile operation of unlicensed devices should be restricted so that mobiles can transmit only under the control of the base station as this results in the most efficient use of limited spectrum (6-7).

Other issues:

- Supports handling terrestrial and satellite PCS issues in separate proceedings (2).

CORPORATE TECHNOLOGY PARTNERS
Comments on 2 GHz Unlicensed PCS

Interest: New technology developer

Band plan:

- No spectrum should be set aside for unlicensed devices. (p. 17-18)
- If an unlicensed band is created, licensed PCS systems should be able to access the unlicensed portion of the band. (p. 9)

Channelization:

- If most users opted for Interference-Sensing Code Division Multiple Access ("ISCDMA"), no subdivisions based on use would need to be made. (p. 9)

Plan for relocation of existing users:

- Using ISCDMA, no relocation is necessary. (p. 9)

Technical standards:

- ISCDMA fits the FCC's proposed technical criteria for operation in the unlicensed band -- power, listen before talk, subscriber units can be controlled either by the base station or by setting thresholds in the unit itself. (p. 9)
- ISCDMA meets the FCC's design criteria for a standards task force. (p. 9)

DOMESTIC AUTOMATION COMPANY
Comments on 2 GHz Unlicensed PCS Devices

Interest: Developer and manufacturer of specialized wireless data communications system.

Band plan:

- Supports proposed allocation as it would for the first time provide a suitable spectrum home for digital data communications equipment (4-6).

Technical standards:

- The frequency tolerance established in proposed Section 15.253 should be amended to resemble more closely the frequency tolerances set forth in Part 15. The proposed standard is too "tight" (6-7).
- The spectral efficiency requirements set forth in proposed Section 15.253 are inappropriate for both the 10 MHz and four 1.25 MHz channels (7-8).

EDISON ELECTRIC INSTITUTE
Comments on 2 GHz Unlicensed PCS

Interest: Association of United States investor-owned electric utilities whose members use private microwave telecommunications facilities licensed in the 1850-2200 MHz (2 GHz) band

Technical standards:

- Opposes allocation of 2 GHz microwave spectrum to unlicensed PCS on a spectrum-sharing basis with incumbent microwave users. Expresses concern about difficulty in predicting or identifying interference, and the lack of recourse should interference occur. (p. 4).
- Voices skepticism that proposed peak power levels for unlicensed PCS will adequately protect 2 GHz microwave operations. (p. 4).
- States that the only method by which incumbent users can be assured of reimbursement of relocation expenses is if all manufacturers/vendors of unlicensed PCS equipment are required to join a consortium that guarantees costs of 2 GHz relocation prior to FCC equipment certification. (p. 5).

ERICSSON CORPORATION
Comments on 2 GHz Unlicensed PCS

Interest: Manufacturer of telecommunications equipment.

Band plan:

- FCC should allocate 15 MHz of unallocated spectrum in the 1895-1910 MHz band for unlicensed services to increase total spectrum allocation for unlicensed PCS to 35 MHz. (p. 21).

Technical standards:

- All users of the unlicensed band should be required to share the unlicensed band and a spectrum sharing etiquette should be developed by industry organizations. (pp. 22-23).
- FCC should not arbitrarily select detailed bandwidth restrictions. (p. 24).
- FCC should consider a separate allocation of spectrum for high speed mobile data LANs in the 5 GHz band. (pp. 24-26).